REMARKS

TITLE

The title of the specification was objected to. A new title that is more indicative of the invention to which the claims are directed has been submitted. Thus, the objection to the title is now submitted to be moot.

U.S.C. §112 CLAIM REJECTIONS

Claims 2 and 5 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner expresses confusion concerning the relationship between the cell position and the virtual display surface. The following explanation is presented to help clarify the information that appears to concern the Examiner. Three figures are attached hereto (FIGs. 202, 204, and 205) to aid in the explanation.

Also, it should be noted that paragraphs 12 and 15 of the specification also describe the relationship of the cell position to the virtual display surface:

> "[0012] According to a second aspect of the present invention, the method further comprises the step of determining luminance of each cell of the display surface by distributing a luminance value of each pixel of an input image to be displayed to cells corresponding to pixels in accordance with the cell position relationship between a virtual display surface having a cell arrangement corresponding to a pixel arrangement of the input image and the display surface.
>
> ...
>
> [0015] According to a fifth aspect of the present invention, the display apparatus has the structure in which luminance of each cell of the display surface is determined by distributing a luminance value of each pixel of an input image to be displayed to cells corresponding to pixels in accordance with the cell position relationship between a virtual display surface having a cell arrangement corresponding to a pixel arrangement of the input image and the display surface." (emphasis added) (see also Fig. 202)

It is respectfully submitted that a virtual display surface, according to a potential embodiment of the present invention, is a set of cells arranged in the same form as an arrangement of input data, as shown in Fig. 204 (see attachment). Although the most common arrangement form of input data is a square arrangement shown in the drawing, the present invention is not limited thereto.

Claims 2 and 5 refer to the actual luminance of cells that is determined in accordance with a relationship of an overlapping position and an overlapping area between cells on a virtual display surface (a unit information area) and cells on an actual display surface at the time of overlaying the virtual display surface shown in Fig. 205 (see attachment) on the actual display surface. See also Figs. 12A-12B of the application and paragraph 111).

According to the present invention, combinations of cells forming a display line are interchanged for an interlaced display. In a display applying the present invention, a display line pitch (p/2) is smaller than a cell arrangement pitch (p) in the column direction (see Fig. 202).

Although a most common arrangement form of input data is a square arrangement shown in the drawing, the present invention is not limited thereto.

Claims 2 and 5 refer to the actual luminance of cells as being determined in accordance with a relationship of an overlapping position and an overlapping area between cells on a virtual display surface (a unit information area) and cells on an actual display surface at the time of overlaying the virtual display surface shown in Fig. 205 on the actual display surface.

It is hoped that the above explanation clarifies the Examiner's understanding of claims 2 and 5.

U.S.C. §103 CLAIM REJECTIONS

Claims 1-13 are rejected under 35 U.S.C. §103(a) as being unpatentable over Betsui et al. (USPN 5,825,128; hereafter referenced Betsui et al.) in view of Shigeta et al.(USPN 5,659,226; hereafter referenced Shigeta et al.).

The present invention may realize a high definition display having a display line pitch smaller than a cell arrangement pitch in the column direction in a plasma display panel shown in Betsui et al. Thus, the present invention may be applied to the plasma display panel shown in Betsui et al. Accordingly, the teachings of Betsui et al. are only partially consistent with the structure of the present invention.

However, the present invention recites "performing an interlaced display," which is not taught or suggested by Betsui et al. As stated in the abstract of the present application, "An interlaced display is performed by changing the combination of cells of a display line that is perpendicular to the column direction in every field between the neighboring cell columns of the same light emission color." (emphasis added) That is, interlacing is not simply shifting. For example, FIG. 6 of Betsui et al. shows that neighboring cell columns of same colors are not

shifted with respect to each other, in comparison with FIGs. 4A-4B of the present invention, which shows that neighboring cell columns of same colors are shifted with respect to each other.

More particularly, as described in paragraph 40 of the specification:

Therefore, each of sequential frames of an input image or a field of the frame (when the input image is an interlace format) is divided into plural subfield. A subfield period that is assigned to each subfield includes a preparation period for equalize a charge distribution of the display surface, an address period for forming a charge distribution corresponding to a display content, and a sustaining period for generating a display discharge for ensuring a luminance level corresponding to a gradation level. In the preparation period, a ramp pulse is applied to adjust a wall voltage to a desired value, for example. In the address period, a scan pulse is applied to the display electrode Y for selecting a display line, and, in synchronization with that, the potential of the address electrode A is controlled in binary manner for addressing. In the sustaining period, a sustaining pulse is applied to the display electrode Y and the display electrode X alternately. A peak value of the sustaining pulse is lower than a discharge start voltage between the display electrodes, so the surface discharge does not occur without the wall voltage being added. Only the lighted cell in which the wall charge was formed during the address period can generate a surface discharge as the display discharge at every application of the sustaining pulse. " (emphasis added)

The interlacing is also described in paragraphs 46-48 of the specification:

"[0046] FIGS. 4A and 4B show a layout in which the relationship between positions of cells having the same light emission color of one display line is indicated. FIG. 5 shows a set of display lines according to the present invention.

[0047] Referring to the display surface cell arrangement, it is understood that a resolution in the column direction can be improved by utilizing the characteristic that the cell position in the column direction is shifted from that of the neighboring column. It is because display lines that are shifted from each other by half a pitch by changing the combination of cells. As shown in FIG. 5, the position of the display line 1 including the cell A and the cell B is shifted from the position of the display line 2 including the cell A and the cell C by half a pitch.

[0048] Therefore, when the structure of the display line 1 is adopted for even fields, and when the structure of the display line 2 is adopted for odd fields, the display line is shifted by half a pitch for every field, so that an interlaced display of image information having a display line number that is twice the scanning electrode number. " (emphasis added)

It is respectfully submitted that Shigata et al. teaches that resolution in the vertical direction is improved by deviating positions of neighboring cells from each other at col. 5, lines 7-54. However, Shigeta fails to teach that an interlaced display is performed on a display surface where positions of neighboring cells are shifted from each other. Figs. 8 and 9 and col. 6, lines 23-38, of Shigeta merely show that addressing is performed separately for odd columns and even columns in one row. A display of odd columns and a display of even columns are not

performed in a time-sharing manner. Shigata et al. fails to describe that set of input data is divided into odd rows and even rows. Stated differently, a display disclosed by Shigeta is a progressive display.

Claims 1 and 3 of the present application are the independent claims. Claims 1 and 3 of the present invention recite that an interlaced display is utilized. As noted above, an interlaced display refers to "An interlaced display is performed by changing the combination of cells of a display line that is perpendicular to the column direction in every field between the neighboring cell columns of the same light emission color" (emphasis added), which is not taught by Betsui et al. Further, the interlaced display is performed on a display surface where positions of neighboring cells are shifted from each other and addressing is performed together for odd columns and even columns in one row.

Shigata et al. teaches that resolution in the vertical direction is improved by deviating positions of neighboring cells from each other at col. 5, lines 7-54. However, Shigeta et al. fails to teach that an interlaced display is performed on a display surface where positions of neighboring cells are shifted from each other. Figs. 8 and 9 and col. 6, lines 23-38, of Shigeta merely show that addressing is performed separately for odd columns and even columns in one row. A display of odd columns and a display of even columns are not performed in a time-sharing manner. Shigata et al. fails to describe that set of input data is divided into odd rows and even rows. Stated differently, a display disclosed by Shigeta is a progressive display.

Thus, neither Betsui et al. nor Shigata et al. teach the present invention. Thus even if Betsui et al and Shigata et al. were combined, these references would not teach the present invention. In addition, there is not teaching or suggestion of combining Betsui et al. and Shigata et al. It is respectfully submitted that the courts have held that the Examiner may not suggest modifying references using the present invention as a template absent a suggestion of the desirability of the modification in the prior art. *In re Fitch*, 23 U.S.P.Q.2d 1780, Fed Cir. 1992. Something in the prior art as a whole must suggest the desirability, and thus, the obviousness, of making the combination. *Alco Standard Corp. v. Tennessee Valley Authority*, 808 F. 2d 1490, 1 U.S.P.Q. 2d 1337 (Fed. Cir. 1986). When a rejection depends on a combination of prior art references, there must be some teaching, suggestion or motivation to combine the references. *In re Geiger*, 815 F.2d 686, 688 2 U.S.P.Q.2d 1276, 1278 (Fed. Cir. 1987).

Hence, independent claims 1 and 3 are submitted to be allowable under 35 U.S.C. §103(a) and to be patentable over Betsui et al. in view of Shigeta et al. Since claims 2 and 4-13 depend from independent claims 1 and 3, claims 2 and 4-13 are submitted to be allowable under 35 U.S.C. §103(a) and to be patentable over Betsui et al. in view of Shigeta et al. for at least the reasons that claims 1 and 3 are submitted to be allowable under 35 U.S.C. §103(a) and patentable over Betsui et al. in view of Shigeta et al.

CONCLUSION

In accordance with the foregoing, no claims have been amended or cancelled. Claims 1-13 are pending and under consideration.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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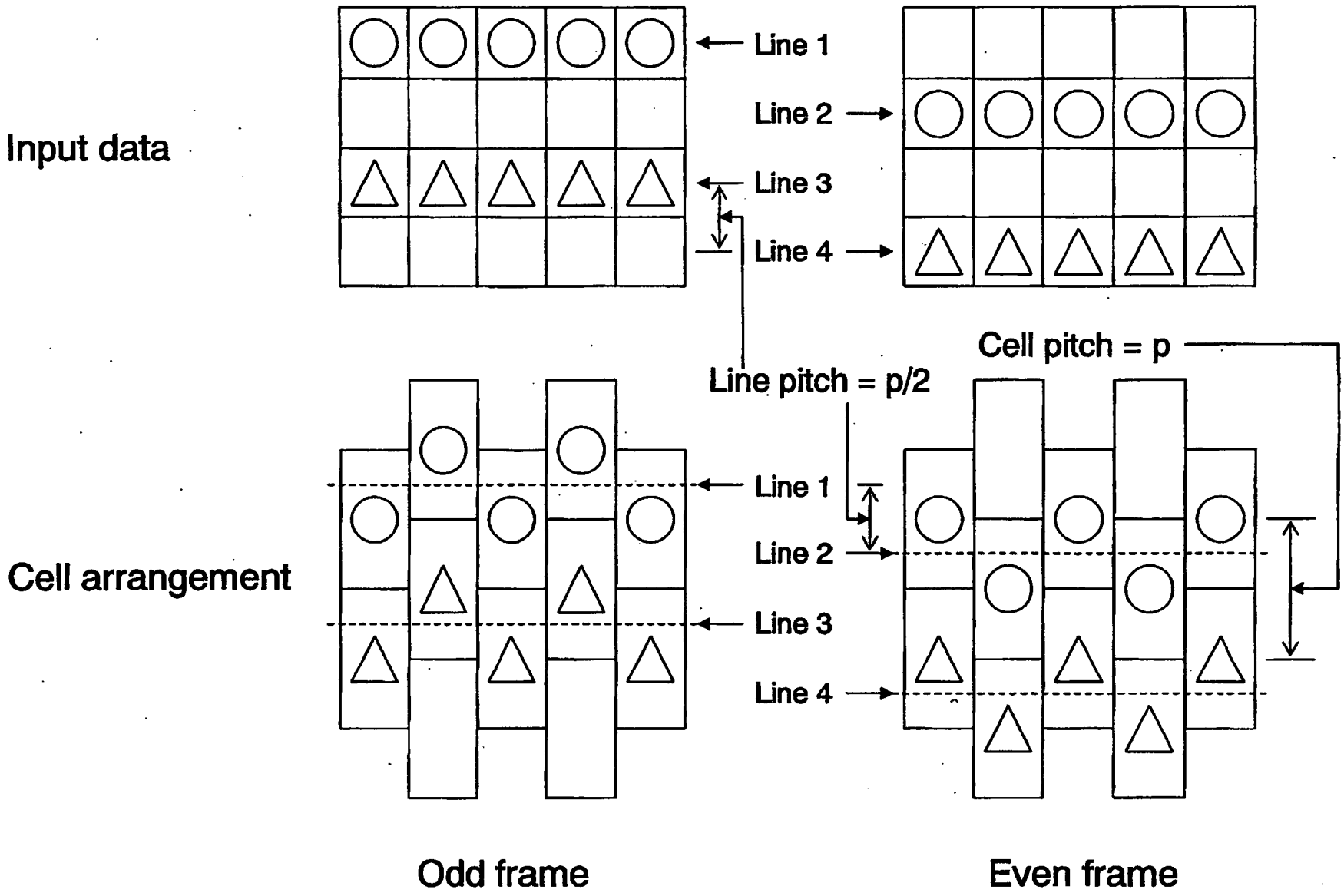
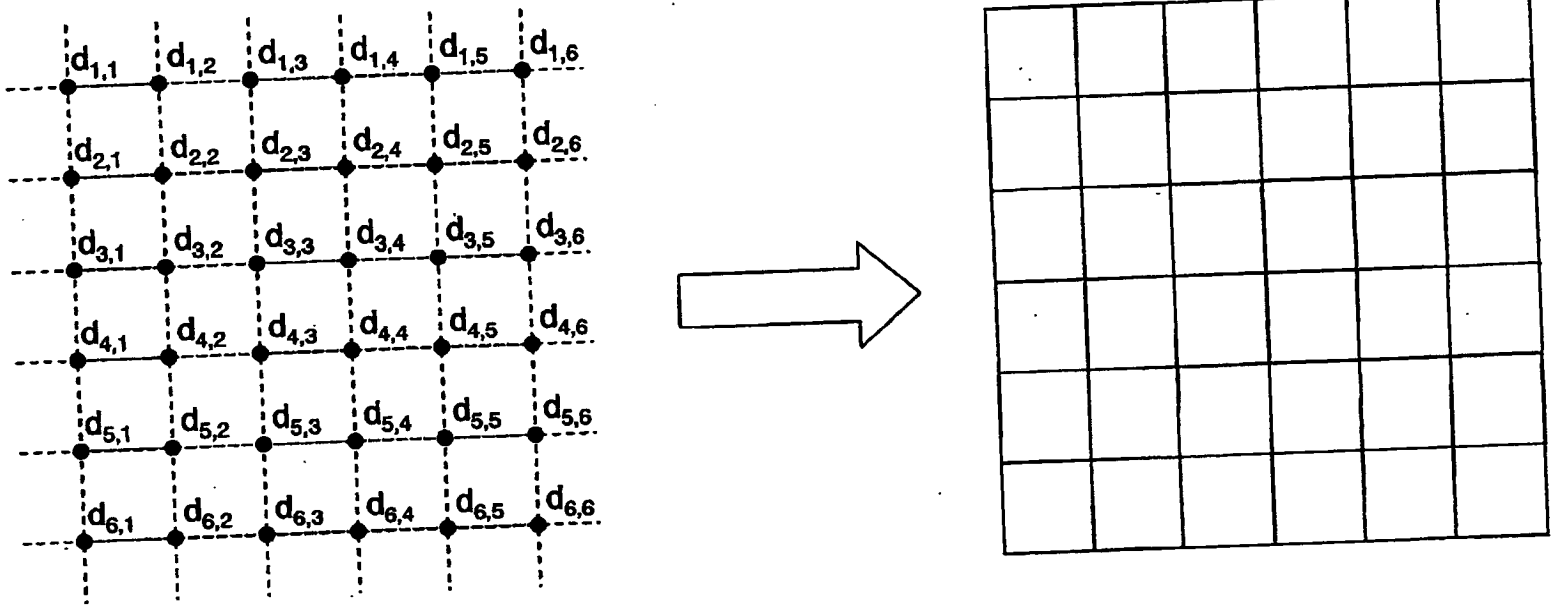


Fig 202. Display method in the present invention.

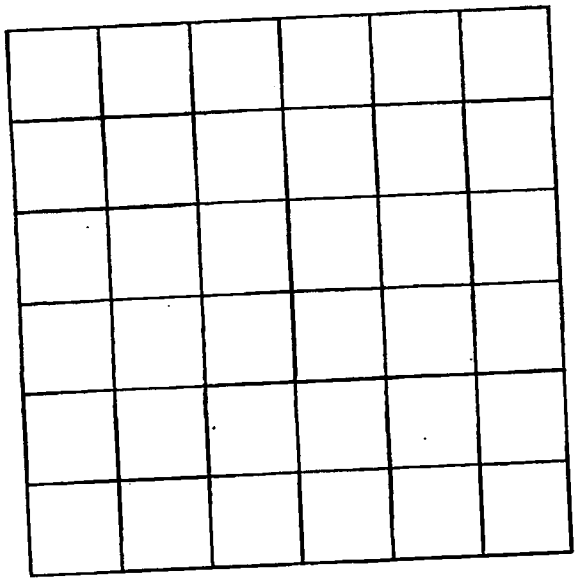
simple correspondence



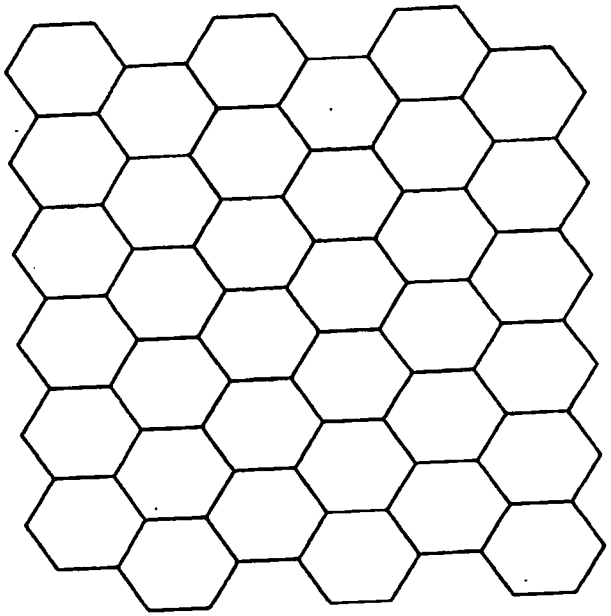
Matrix of input data

Virtual display surface

Fig. 204 Virtual display surface



Cell arrangement
on the virtual display surface



Cell arrangement
on the real display surface

Fig. 205 Virtual display surface and real display surface